

REMARKS

Claims 1, 2, 4, 12, 14, and 17 have been amended. The specification has been amended to correct certain informalities. Accordingly, claims 1-7 and 12-17 are currently pending in the application, of which claim 1 is independent

Applicant respectfully submits that the above amendments do not add new matter to the application and are fully supported by the specification. Support for the amendments may be found at least in Figure 1 and at page 2, lines 22-29 of the specification.

In view of the above amendments and the following Remarks, Applicant respectfully requests reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

Amendments to the Drawings

The drawings are objected to under 37 CFR 1.83(a).

Applicant notes that the Office Action fails to address Applicant's request for withdrawal of the drawing objection, found on page 6 of Applicants reply dated December 28, 2009. Thus, Applicant reasserts this request for withdrawal of the drawing objection.

Rejections Under 35 U.S.C. § 102

Claims 1-6 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent Application Publication No. 2002/0014630 applied for by Okazaki, *et al.* ("Okazaki").

In order for a rejection under 35 U.S.C. § 102(b) to be proper, a single reference must disclose every claimed feature. To be patentable, a claim need only recite a single novel feature that is not disclosed in the cited reference. Thus, the failure of a cited reference to disclose one or more claimed features renders the 35 U.S.C. § 102(b) rejection improper.

Okazaki fails to disclose the claimed features of claim 1 for at least the reasons below.

Claim 1 has been amended to recite, *inter alia*, “the reflective metal layer being disposed between the contact metal layer and the diffusion barrier layer and being in direct contact with both the contact metal layer and the diffusion barrier layer.”

The Office Action cites Okazaki's Ni layer 32 or Mo layer 33 as teaching the contact metal layer, Okazaki's Al layer 34 as teaching the reflective metal layer, and Okazaki's Ti layer 35 as teaching the diffusion barrier layer (Office Action: pages 4 and 5). Applicant respectfully disagrees. Rather, Okazaki discloses that the Mo layer 33 and the Ti layer 35 function as barrier layers for preventing diffusion of impurities (Okazaki: para. [0098]). Therefore, Okazaki's Al layer 34 is in direct contact between two barrier layers, which are the Mo layer 33 and the Ti Layer 35. Okazaki supplies no teaching to combine the Ni layer 32 and the Mo layer 33 as the Office Action urges at page 5 (“combined layer 32+33”). In contrast, Okazaki discloses that an ohmic contact to GaN is difficult to form and that metal atoms diffuse between the ohmic layer and the high-reflection layer due to heating of the LED during operation (Okazaki: paras. [0121] and [0122]). Due to these considerations, Okazaki discloses that the barrier layer Mo layer 33 is formed between the Ni layer 32 and the Al layer 34 to prevent diffusion of metal atoms between the ohmic layer (layer 32) and the high-reflection layer (Al layer 34) (Okazaki: para. [0123]). As such, the Mo layer 33 and the Ni layer 32 cannot possibly be combined as the Office Action contends (Office Action: page 5). Consequently, Okazaki fails to disclose or suggest at least “the reflective metal layer being disposed between the contact metal layer and the diffusion barrier layer and being in direct contact with both the contact metal layer and the diffusion barrier layer” for at least these reasons.

Claims 1-7 stand rejected under 35 U.S.C. § 102(b/e) as being allegedly anticipated by U.S. Patent Application Publication No. 2003/0015721 applied for by Slater Jr., *et al.* (“Slater”).

Slater fails to anticipate the claimed features of claim 1 for at least the reasons below.

Amended claim 1 recites, *inter alia*, “a p-type ohmic electrode layer formed on the gallium nitride-based semiconductor layer.”

The Office Action cites Slater’s paragraph [0022] as teaching a p-type ohmic electrode layer and states that “Slater 721 discloses that all of his embodiments are complementary[,] i.e., include p-type or n-type” (Office Action: page 7). Applicant respectfully disagrees. Rather Slater discloses that embodiments are described with reference to gallium nitride-based LEDs on silicon carbide-based substrates and then further discloses numerous combinations of materials having a substrate with a higher refractive index than the corresponding diode (Slater: para. [0022]). In contrast to the Office Action’s position, Slater’s paragraph [0022] does not mention a p-type ohmic electrode formed on a gallium nitride-based semiconductor layer.

The Office Action then cites Slater’s layers 32, 34, and 36 of FIG. 7 and FIG. 8 as teaching layers of an alleged p-type ohmic electrode layer (Office Action: pages 7 and 8). However, Slater does not disclose that layers 32, 34, and 36 form a p-type electrode layer.

Moreover, the rejection of claim 1 cannot be maintained on this flawed analysis because it violates Federal Circuit precedent:

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added).

The above-noted teachings from Slater’s paragraph 22, FIG. 7, and FIG. 8 cannot reasonably be said to be “arranged as in the claim.” Thus, the Office Action fails to establish that Slater anticipates claim 1 for at least these reasons.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 102(b/e) rejection of claim 1. Claims 2-7 depend from claim 1 and are allowable at least for this reason.

Since none of the other prior art of record discloses or suggests all the features of the claimed invention, Applicant respectfully submits that independent claim 1, and all the claims that depend therefrom, are allowable.

Rejections Under 35 U.S.C. § 103

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Okazaki in view of U.S. Patent Application Publication No. 2003/0991170 applied for by Shibata, *et al.* ("Shibata"). Applicant respectfully traverses this rejection for at least the following reasons.

Applicant respectfully submits that claim 1 is allowable over Okazaki, and that Shibata fails to cure the deficiencies of Okazaki noted above with regard to claim 1. Hence, claim 7 is allowable at least because it depends from an allowable claim 1.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claim 7.

Claims 14-16 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Okazaki in view of U.S. Patent No. 6,326,294 issued to Jang, *et al.* ("Jang"). Applicant respectfully traverses this rejection for at least the following reasons.

Applicant respectfully submits that claim 1 is allowable over Okazaki, and that Jang fails to cure the deficiencies of Okazaki noted above with regard to claim 1. Hence, claims 14-16 are allowable at least because they depend from an allowable claim 1.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claims 14-16.

Claim 17 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Slater in view of Jang. Applicant respectfully traverses this rejection for at least the following reasons.

Applicant respectfully submits that claim 1 is allowable over Slater, and that Jang fails to cure the deficiencies of Slater noted above with regard to claim 1. Hence, claim 17 is allowable at least because it depends from an allowable claim 17.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claim 17.

Other Matters

In addition to the amendments mentioned above, various paragraphs of the specification have been amended for correction and clarification. Applicant does not intend to relinquish any subject matter by these amendments.

CONCLUSION

A full and complete response has been made to the pending Office Action, and all of the stated objections and grounds for rejection have been overcome or rendered moot.

Accordingly, all pending claims are allowable, and the application is in condition for allowance.

The Examiner is invited to contact Applicant's undersigned representative at the number below if it would expedite prosecution. Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

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